



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/742,857	12/20/2000	Benny Fonden	34647-432USPX P12409US	8088
27045	7590	05/03/2005	EXAMINER	
ERICSSON INC. 6300 LEGACY DRIVE M/S EVR C11 PLANO, TX 75024			SCHEIBEL, ROBERT C	
			ART UNIT	PAPER NUMBER
			2666	

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/742,857

Applicant(s)

FONDEN ET AL.

Examiner

Robert C. Scheibel

Art Unit

2666

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 and 20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 and 20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments, see section 2 on page 7, filed 12/1/2004, with respect to the objection to claim 1 have been fully considered and are persuasive. The objection to claim 1 has been withdrawn.

2. Applicant's arguments, see section 3 on page 7, filed 12/1/2004, with respect to the rejection of claim 14 under 35 U.S.C. 112, second paragraph, have been fully considered and are persuasive. The rejection of claim 14 under 35 U.S.C. 112, second paragraph, has been withdrawn.

3. Applicant's arguments, see section 4 on pages 7-9, filed 12/1/2004, with respect to the rejection of claims 1-3, 5-6, 8, 11-12, and 18 under 35 U.S.C. 102(e) have been fully considered but they are not persuasive. In the first paragraph of this section, applicant alleges that the amended claims better distinguish the invention from McCloghrie. Examiner disagrees as will be explained in more detail below in response to applicant's more detailed arguments. Examiner notes that while there may be differences between the details of the invention provided in the present specification, the present broad claim language is disclosed by McCloghrie. If applicant intends to submit amended claims further distinguish the invention from the cited prior art, examiner recommends that applicant carefully consider US 2005/0047337 to Virtanen and U.S. Patent 6,879,834 to Virtanen.

Applicant provides a reasonable summary of the invention in the next paragraph. In the first full paragraph of page 8, applicant states the advantage of the present invention as allowing any node within a network to perform a user-specific differentiated handling of data packets.

Art Unit: 2666

Applicant further argues that McCloghrie can only consider information present at the edge of the network and that McCloghrie fails to disclose user-specific packet handling by intermediate nodes. However, as stated in the last office action, the edge and intermediate nodes referred to in the claims are disclosed by element 210 which is referred to explicitly as an intermediate node in lines 43-45 of column 6. McCloghrie also notes (in lines 45-47 of column 2) that individual packets/frames can be marked such that they are treated accordingly by intermediate nodes. Furthermore, it appears that the only independent claim of the group referred to above that contains a reference to an intermediate node is claim 18. It is clear that this intermediate node provides user specific packet handling in the passage from line 53 of column 15 through line 12 of column 16. In the next paragraph, the applicant argues that McCloghrie specifies only the setting of the DS field at *edge* nodes and further states that McCloghrie only addresses per-hop bits of the DS field and thus does not teach the use of the *unspecified* bits in the DS field. As noted above, element 210 of McCloghrie is described explicitly as an intermediate node. Further, there is no mention in the independent claims 1, 11, or 18 of using unspecified bits in the DS field. The next paragraph restates the main features of the invention. The first full paragraph on page 9 argues that McCloghrie fails to teach the specifying of quality parameters for an identified user. However, McCloghrie clearly implies that the policy server uses information on the user as well as application information in determining the policy to apply to a particular flow. Lines 53-56 of column 15 indicate that network parameters are examined by the policy server, including information identifying the user (IP addresses). McCloghrie further indicates a need for different treatments for different users in lines 16-19 of column 4. As has been indicated in response to the specific arguments above, examiner still believes that

Art Unit: 2666

McCloghrie discloses the limitations of broadly worded claims 1-3, 5-6, 8, 11-12, and 18 and maintains the previous rejection. Where the amended limitations changed the scope of the claims, the examiner has modified the details accordingly to indicate how McCloghrie discloses these limitations.

4. Applicant's arguments, see section 5 on pages 9-11, filed 12/1/2004, with respect to the rejection of claims 4, 7, 9-10, and 13-17, under 35 U.S.C. 102(e) have been fully considered but they are not persuasive. In the first two paragraphs of this section, applicant argues that neither McCloghrie nor Raith disclose the limitation of using the unspecified bits in the DS field to carry the quality parameters. However, as argued in the previous action, the teaching of Raith regarding the use of unused or unspecified fields in communications protocols makes this obvious in view of the other teachings already discussed in McCloghrie. In the next two paragraphs, applicant argues essentially that since McCloghrie does not teach the limitations of claims 1 and 11, claims 1 and 11 are allowable and thus any claims depending from 1 and 11 are also allowable. However, as stated above, examiner disagrees with the assertion that amended claims 1 and 11 are allowable and therefore maintains the previous rejection of claims 9 and 13-15 under 35 U.S.C. 103(a). In the next paragraph, applicant argues similarly that claims 4, 10 and 17 are allowable as their parent claims are allowable. Again, examiner disagrees and generally maintains the previous rejection.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 2666

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. **Claims 1-3, 5-6, 8, 11-12, and 18** are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,286,052 to McCloghrie et al.

Regarding claim 1, McCloghrie discloses a method for the provision of a defined quality of service in a packet switched communication system with interconnected nodes for forwarding of data packets, wherein the system comprises at least one edge node (EN) (intermediate device 210 of Figure 2 (also referred to as the “policy enforcer”)) for connection to user equipment (UE) (host/server 222 of Figure 2) or a further communication system (FS) and for processing data packets which comprise a data field (DS field 132 of Figure 1B) specifying a handling of the packets and the nodes perform differentiated handling of the packets according to said data field wherein the communication system further comprises or is connectable to a data base (DB) (policy server 216 and the associated repository 218 of Figure 2) which contains a record for a user specifying a quality of service for said user (information used to formulate the traffic management rules – see passage from line 59 of column 15 through line 1 of column 16), an edge node (EN) which processes a packet for said user is provided with quality parameters from the data base (DB) (see lines 6-10 of column 16) and the edge node (EN) sets the data field specifying the handling of the packet according to the record (see lines 6-10 of column 16).

Regarding claim 11, McCloghrie discloses an edge node in a packet switched communication system with interconnected nodes for a forwarding of data packets, wherein the edge node (EN) (intermediate device 210 of Figure 2 (also referred to as the “policy enforcer”)) processes the data packets and is connectable to a node and to user equipment (UE) (host/server

Art Unit: 2666

222 of Figure 2) or a further communication system ('FS) and the packets comprise a data field (DS field 132 of Figure 1B) for specifying a handling of the packets in the nodes, wherein the edge node (EN) is provided with an interface to access a data base (DB) (policy server 216 and the associated repository 218 of Figure 2) holding user records and retrieving parameters specifying a quality of service for an identified user, and the edge node (EN) is also provided with means to store parameters specifying a quality of service for the user (inherent in that the policy enforcer must store the parameters (for example the "treatments" discussed in lines 38-43 of column 16) in order to enforce these policies on the packets) served from a record for said user, means for determining that an incoming packet is associated with the identified user (identification of traffic flows discussed starting on line 52 of column 7) and the edge node (EN) is provided with processing means which set the data field specifying the handling of the packet according to the record (see lines 38-43 of column 16).

Regarding claim 18, McCloghrie discloses a program unit on a data carrier or loadable into an edge node in a packet switched communication system, wherein the edge node (EN) (intermediate device 210 of Figure 2 (also referred to as the "policy enforcer")) provides connections and processes packets sent between user equipment (UE) (host/server 222 of Figure 2) or a further communication system (FS) and nodes in the communication system which perform a differentiated handling of the packets according to a data field in the data packets (DS field 132 of Figure 1B), wherein the program unit comprises means for loading parameters for a user served by the edge node, said parameters specifying a quality of service for said user (see lines 6-12 of column 16, the policies enforced by the policy enforcer specify the quality of service), means for determining that an incoming packet is associated with the identified user

Art Unit: 2666

(identification of traffic flows discussed starting on line 52 of column 7), and the program unit comprises means for setting the data field according to the parameters (see lines 38-43 of column 16).

Regarding claim 2, McCloghrie discloses the limitation that the data field is specified according to a requested quality of service (policy bindings 552a-c of figure 5B include the requested quality of service and are passed to the policy server through the flow start and request policy messages 426 and 428).

Regarding claim 3, McCloghrie discloses the limitation that the data packets are processed according to a protocol stack and an edge node (EN) sets the data field according to information specified on a layer (LA, LI) in the protocol stack (the policy bindings are application-level parameters – see lines 60-63 of column 14) of the edge node (EN) which is different from the layer (LR) evaluated by the nodes for the handling of the packets (the DS field is part of the network layer as shown in figure 1B).

Regarding claim 5, McCloghrie discloses the limitation that quality parameters are forwarded from a second node (EN') to the edge node (EN) which processes data packets for said user. (the quality parameters from the database (policy server 216) are forwarded through a second node (intermediate device 208) to the edge node (intermediate device 210)).

Regarding claim 6, McCloghrie discloses the limitation that the data packets are internet protocol packets and the data fields is the differentiated services field in the internet protocol header. (disclosed in field 132 of Figure 1B and suggested in lines 27-28 of column 5).

Regarding claim 8, McCloghrie discloses the limitation that the bits (CP) specifying the per hop behavior are set according to the record (see lines 27-28 of column 5).



Art Unit: 2666

Regarding claim **12**, McCloghrie discloses the limitation that the node is provided with means to process data packets according to a protocol stack and the processing means set the data field on the layer (LR) (the DS field is part of the network layer as shown in figure 1B) evaluated by the nodes for the handling of the packets according to data evaluated from a different layer (LA, LI) (the policy bindings are application-level parameters – see lines 60-63 of column 14) in the protocol stack.

Regarding claim **20**, McCloghrie discloses the limitation that the setting of the data field causes the intermediate nodes to change the handling of the packets in numerous places. First of all, consider lines 45-47 of column 2. Further, consider the behavior of intermediate node 210 as described in lines 43-45 of column 6 and the passage from line 53 of column 15 through line 12 of column 16.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

Art Unit: 2666

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims **7 and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,286,052 to McCloghrie et al in view of U.S. Patent 6,058,108 to Raith et al.

Regarding claim 7, McCloghrie discloses all the limitations of the parent claim 6 as discussed in the rejection under 35 U.S.C. 102(e) above. Similarly, regarding claim 16, McCloghrie discloses a node for a packet switched communication system with interconnected nodes (see figure 2) for a forwarding of data packets which comprise a data field specifying a handling of the packets (DS field 132 of Figure 1B), wherein the nodes comprise processing means for performing a differentiated handing of the packets according to said data field (lines 59-63 of column 4), the data packets are internet protocol packets and the data field is the differentiated services field in the internet protocol header (see figure 1B).

McCloghrie does not disclose expressly the limitation of claims 7 and 16 of using the unspecified bits in the DS field to perform packet handling. The concept of using unused fields in communications protocols for other purposes is already well known in the art. For example, consider lines 24-30 of Raith. This passage describes the use of an RSVD field (previously unused) for new functionality in order to minimize the changes to the existing standard (in this case the IS-54B air interface). Additionally, the UD fields are part of the DS field which is clearly used in packet processing (as it essentially specifies the priority to be used to process the packets.) Thus, it would be obvious to use the UD sub-field of the DS field for some packet processing functionality. It would clearly be beneficial to use the bits already allocated in the standard rather than define new bits. McCloghrie and Raith are from the same problem solving

Art Unit: 2666

area of communications protocols. At the time of the invention, it would have been obvious to one of ordinary skill in the art to utilize the two unspecified bits of the Differentiated Services field to further define the packet handling related to Differentiated Services. The motivation for doing so would have been to add additional packet handling features without changing the packet structure (as suggested in lines 24-30 of Raith), thus providing backward compatibility or at least minimizing changes to the standard. Therefore, it would have been obvious to combine Raith with McCloghrie for the benefit of minimizing standards changes to obtain the invention as specified in claims 7 and 16.

10. Claims 9 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,286,052 to McCloghrie et al in view of U.S. Patent 6,661,782 to Mustajarvi et al.

McCloghrie discloses all the limitations of the parent claims 1 and 11 as discussed in the rejection under 35 U.S.C. 102(e) above. McCloghrie does not disclose expressly the limitations of claims 9 and 13-15. Mustajarvi discloses a network in Figure 1 which has an HLR (home location register) as a database containing subscriber data (see lines 52-55 of column 8 as well), and edge nodes BSC1 and SGSN1 which are at the edge of the radio and the backbone networks, respectively. This network structure teaches the limitation of claim 9 that the database is a location register (the HLR is the database). It also discloses the limitation of claim 13 that the edge node is an SGSN as the SGSN of Figure 1 is an edge node similar to the edge node (210) of McCloghrie. Further, this figure discloses the limitation of the edge node being both a control node (as emphasized in lines 8-12 of column 8) and a node for processing packets (it forwards packets to the core network of Figure 1). Finally, this network structure also discloses the limitations of the edge node being a radio network controller in that the BSC is an edge node

Art Unit: 2666

fully capable of implementing the functionality of the edge node (210) of McCloghrie.

McCloghrie and Mustajarvi are analogous art because they are from the same field of endeavor of packet data networks. At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the invention of McCloghrie in the network structure of Mustajarvi. McCloghrie notes in lines 59-65 that the structure presented in the document is for illustrative purposes only and that the invention could easily be applied to many other configurations. The motivation for applying McCloghrie's invention to the wireless packet data structure of Mustajarvi would have been to apply quality of service treatments to the flows in a wireless packet data network (much the same as the motivation for McCloghrie's invention in the embodiment shown as stated in lines 25-33 of column 4). Therefore, it would have been obvious to combine Mustajarvi with McCloghrie for the benefit of applying quality of service treatments to flows in a wireless packet data network to obtain the invention as specified in claims 9 and 13-15.

11. Claims **4, 10, and 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,286,052 to McCloghrie et al in view of RFC 2475 "Architecture for Differentiated Services" by Blake et al.

McCloghrie discloses all the limitations of the parent claims 1 and 16 as discussed in the rejection under 35 U.S.C. 102(e) above. McCloghrie does not disclose expressly the limitations of claims 4, 10, and 17. Blake discloses the limitation of claim 4 that the data field is specified according to a traffic load in the communication system in Figure 1 and the associated descriptions. The meter of figure 1 measures the traffic load, and the marker sets the value of the DS field based on feedback from the marker. Similarly, Blake discloses the limitation of claims

Art Unit: 2666

10 and 17 of the node is provided with means to measure a traffic load (the meter of figure 1) and the data field is evaluated if the traffic load is above a threshold value (the marker and shaper/dropper components all receive feedback from the meter and section 2.3.3.1 suggests the use of a threshold in that an action is triggered based on whether a packet is in- or out-of-profile). McCloghrie and Blake are analogous art because they are from the same field of endeavor of providing quality of service to individual packet flows. At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify McCloghrie to provide a meter as in Figure 1 of Blake and to mark and evaluate the DS field based on the state of the meter. The motivation for doing so would have been to act on packets differently depending on whether it is in- or out-of-profile as suggested in the first paragraph of section 2.3.3 of Blake. Therefore, it would have been obvious to combine Blake with McCloghrie for the benefit of treating packet differently based on the current state of the flow (in- or out-of-profile) to obtain the invention as specified in claims 4, 10, and 17.

### ***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 2005/0047337 to Virtanen and U.S. Patent 6,879,834 to Virtanen disclose a method for providing subscriber-specific limits on the quality of service provided by a wireless network.

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

Art Unit: 2666

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert C. Scheibel whose telephone number is 571-272-3169. The examiner can normally be reached on Monday and Thursday from 6:30-5:00 Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema S. Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*RCS 4-30-05*  
Robert C. Scheibel  
Examiner  
Art Unit 2666

*Seema S. Rao*  
**SEEMA S. RAO**  
5/2/05  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800